FIU Engineering & Computing
Biomedical Engineering

# Wallace H. Coulter Foundation
## Biomedical Engineering Seminar Series

**DR. MICHEL M. MAHARBIZ** is a Professor with the Department of Electrical Engineering and Computer Science at the University of California, Berkeley. His research interests include the extreme miniaturization of technology focused on building synthetic interfaces to cells and organisms. He is known as one of the co-inventors of "neural dust", an ultrasonic interface for vanishingly small implants in the body. His group is also known for developing the world's first remotely radio-controlled cyborg beetles. This was named one of the top ten emerging technologies of 2009 by MIT's Technology Review (TR10) and was in Time Magazine's Top 50 Inventions of 2009. Prof. Maharbiz received his B.S. from Cornell University and his Ph.D. from the University of California, Berkeley under nanotechnologist Professor Roger T. Howe (EECS) and synthetic biologist Professor Jay D. Keasling (ChemE); his thesis work led to the foundation of Microreactor Technologies, Inc. which was acquired in 2009 by Pall Corporation. He is a Senior Member of the IEEE (Engineering in Medicine and Biology Society) and a member of the Society for Neuroscience. Prof. Maharbiz is a recipient of the McKnight Foundation's Technological Innovations in Neuroscience Award (2017), a Chan-Zuckerberg (CZ) Biohub Investigator (2017), a Bakar Fellow (2014), recipient of a National Science Foundation CAREER Award (2009), a GE Scholar and an Intel IMAP Fellow. Michel's long term goal is understanding developmental mechanisms as a way to engineer and fabricate machines.


## DR. MICHEL M. MAHARBIZ

**Professor with the Department of Electrical Engineering and Computer Science**
University of California, Berkeley, CA

## THE DEVELOPMENT AND EXPANSION OF THE NEURAL DUST CONCEPT

**ABSTRACT:** The emerging field of bioelectronic medicine seeks methods for deciphering and modulating electrophysiological activity in the body to attain therapeutic effects at target organs. Current approaches to interfacing with peripheral nerves and muscles rely heavily on wires, creating problems for chronic use, while emerging wireless approaches lack the size scalability necessary to interrogate small-diameter nerves. Several years ago, ultrasound was identified as a way of powering and communicating with very small neural implants, providing a potential path forward for new peripheral nerve therapies. I will discuss the development of this "neural dust" concept as well as more recent work which tackles the challenges of interrogating multiple implants deep in the brain and through the skull.

FRIDAY, OCTOBER 30 / 9:00 AM / VIA ZOOM

**Zoom Registration ▸ https://bme.fiu.edu/seminars**

Through the generous support of the Wallace H. Coulter Foundation the Department of Biomedical Engineering facilitates weekly lectures each year during academic terms. Experts in all areas of Biomedical Engineering are invited to campus to provide a research seminar and to meet with faculty and students and to tour our academic and research facilities.